IN THE CLAIMS

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1. (Amended) An isolated polypeptide comprising a functional long chain polyunsaturated fatty acid (PUFA) elongase having a function of extending a chain length of an 18 carbon PUFA to 20 carbons in length.

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3. (Amended) A polypeptide according to claim 1 wherein the polypeptide comprises a portion of the amino acid sequence shown in SEQ ID NO:15 or a variant thereof.

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7. (Amended) A polypeptide according to claim 1 wherein the polypeptide sequence includes a sequence motif responsible for Endoplasmic Reticulum (ER)-retention.

8. (Amended) A polypeptide according to claim 1 wherein the polypeptide is capable of elongating palmitoleic acid (PA; $16:1\Delta^{9}$) to vacceric acid (VA; $18:1\Delta^{11}$).

9. (Amended) A polypeptide according to claim 1 wherein the polypeptide is an animal polypeptide.

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16. (Amended) An isolated DNA molecule encoding a polypeptide according to claim 1.

17. (Amended) A DNA molecule according to claim 16 wherein the DNA molecule comprises the sequence shown in SEQ ID NO:7 or variants of that sequence due to base substitutions, deletions, and/or additions.

18. (Amended) An engineered organism engineered to express a polypeptide according to claim 1.

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21. (Amended) An engineered organism containing a synthetic pathway for the production of a polypeptide according to claim 1.

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23. (Amended) An engineered organism according to claim 21 wherein the pathway includes Δ^{6}-fatty acid desaturase.

Q12 24. (Amended) An engineered organism according to claim 21 wherein the organism is a lower eukaryote.

27. (Amended) A transgenic plant engineered to express a polypeptide according to claim1.

Q13 28. (Amended) A transgenic plant containing a DNA molecule according to claim 16.

29. (Amended) A method of producing a PUFA comprising carrying out an elongase reaction catalysed by a polypeptide according to claim 1.

Q14 32. (Amended) A PUFA produced by a method according to claim 29.

Q15 35. (Amended) A pharmaceutical composition comprising a polypeptide according to claim 1.

37. (Amended) A pharmaceutical composition according to claim 35 wherein the composition comprises a pharmaceutically-acceptable diluent, carrier, excipient or extender.

Q16 38. (Amended) A method of elevating the PUFA levels of an animal or a plant comprising the step of supplying to the animal or plant a polypeptide according to claim 1.

39. (Amended) A method according to claim 38 wherein the animal is a mammal.

40. (Amended) A method according to claim 39 wherein the mammal is a human.

41. (New) A pharmaceutical composition according to claim 36 wherein the composition comprises a pharmaceutically-acceptable diluent, carrier, excipient, or extender.

Q17 42. (New) A method of elevating the PUFA levels of an animal or a plant comprising the step of supplying the animal or plant with a DNA molecule according to claim 16.

43. (New) A method of elevating the PUFA levels of an animal or a plant by supplying the animal or plant with a PUFA according to claim 32.